

इंटरनेट

मानक

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“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 10722-2 (1983): Graphical symbols for elements of kinematic diagrams Part 2 [PGD 24: Drawings]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”



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*Indian Standard***GRAPHICAL SYMBOLS FOR  
ELEMENTS OF KINEMATIC DIAGRAM, PART 2**

( ISO Title : Kinematic Diagrams — Graphical Symbols — Part 2 )

**National Foreword**

This Indian Standard ( Part 2 ), which is indetical with ISO 3952/2-1981 Kinematic diagrams — Graphical symbols — Part 2', issued by the International Organization for Standardization (ISO), was adopted by the Indian Standards Institution on the recommendation of the Drawings Sectional Committee and approved by the Engineering Division Council.

Wherever the words 'International Standard' appear, referring to this standard, they should be read as 'Indian Standard'.

**Additional Information**

This standard is the national implementation of ISO 3952/2-1981, as such only the English text has been reproduced. If the French and Russian texts are required, reference should be made to the original ISO publication.

This standard includes a number of parts, each identical with the corresponding part of the International Standard ISO 3952, as follows:

|                       |   |
|-----------------------|---|
| Part 1 ( ISO 3952/1 ) | Motion of links of mechanisms<br>Kinematic pairs<br>Links and connection of their components<br>N-bar linkages and their components |
| Part 2 ( ISO 3952/2 ) | Friction and gear mechanisms<br>Cam mechanisms  |
| Part 3 ( ISO 3952/3 ) | Geneva and ratchet mechanisms<br>Couplings and breaks   |

## **Introduction**

The purpose of this International Standard is the creation of a system of graphical symbols for kinematic diagrams. The creation of such a system will simplify the preparation of kinematic diagrams and will facilitate the execution and understanding of such diagrams by specialists of different countries.

## **Scope and field of application**

This International Standard establishes the graphical symbols for elements of kinematic diagrams of products in all branches of industry. The symbols established by this International Standard are to be used on diagrams in technical documentation, as well as in technical and educational literature.

This International Standard is being published in three parts, as follows:

### **Part 1**

- 1 Motion of links of mechanisms
- 2 Kinematic pairs
- 3 Links and connections of their components
- 4 Linkage of bars and their links

### **Part 2**

- 5 Friction and gear mechanisms
- 6 Cam mechanisms

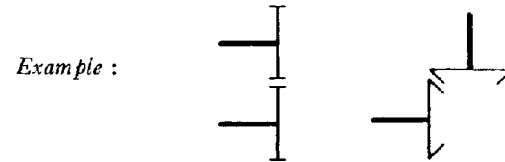
### **Part 3**

- 7 Geneva and ratchet mechanisms
- 8 Couplings and brakes

## 5 Friction and gear mechanisms

### General remarks

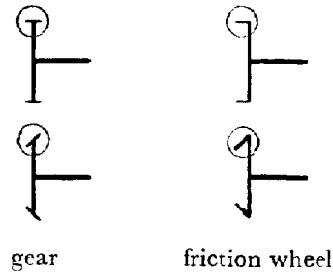
1 It is permissible to show the clearance at the point of contact of wheels if they are represented by one line.



2 In the designations of friction mechanisms, the symbol of affixed connection of wheel and shaft is to be shown only on one wheel.

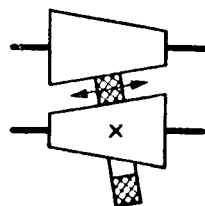
3 The symbols for gear and friction wheels differ with respect to the position of the line representing the gear rim or friction surface relative to the plane of the wheel.

*Example :*

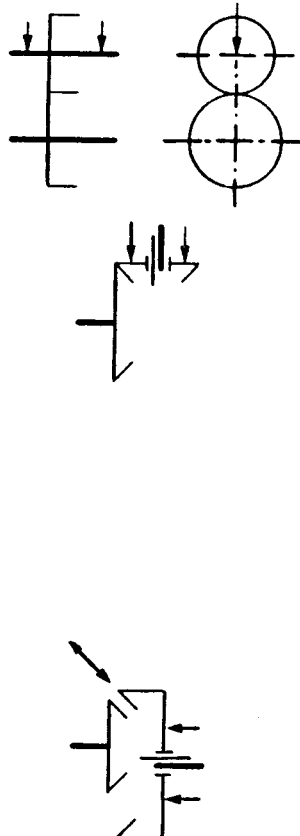
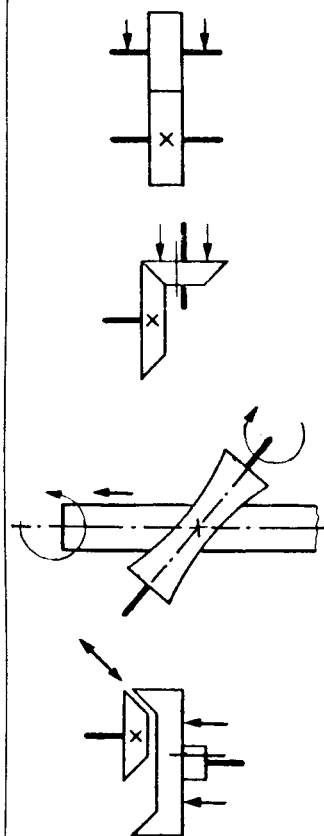
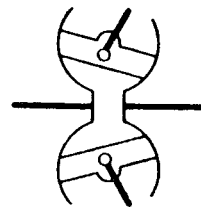


| No.   | Designation                   | Definition | Basic symbol | Permissible symbol | Notes |
|-------|-------------------------------|------------|--------------|--------------------|-------|
| 5.1   | <b>Friction mechanisms</b>    |            |              |                    |       |
| 5.1.1 | <i>Friction wheels</i>        |            |              |                    |       |
|       | a) cylindrical                |            |              |                    |       |
|       | b) bevel                      |            |              |                    |       |
|       | c) curvilinear                |            |              |                    |       |
|       | d) crown wheel ( face wheel ) |            |              |                    |       |
|       | e) flexible                   |            |              |                    |       |
| 5.1.2 | <i>Friction transmissions</i> |            |              |                    |       |

With intermediate body



With toroidal wheels, adjustable



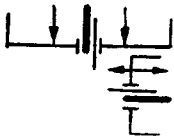
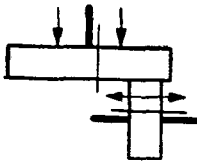
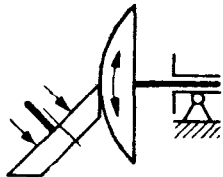
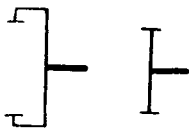
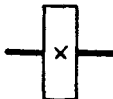

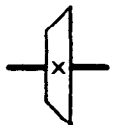
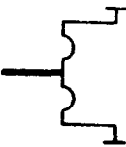
a) with cylindrical wheels

b) with bevel wheels

c) with hyperboloidal wheel

d) with bevel wheels, adjustable



| No.   | Designation   | Definition | Basic symbol  | Permissible symbol   | Notes   |
|-------|---|------------|---|--|---|
|       | e) crown wheel ( face wheel ), adjustable           |            |    |   | With spherical wheel, adjustable<br> |
| 5.2   | <b>Gear mechanisms</b>                              |            |   |  |   |
| 5.2.1 | <i>Gear ( without specification of tooth form )</i> |            |   |  |   |
|       | a) cylindrical                                      |            |    |   |   |
|       | b) bevel  |            |   |  |   |
|       | c) flexible   |            |  |  |   |

5.2.2

*Designation of tooth type*

a) of cylindrical wheels

i) straight spur

ii) helical

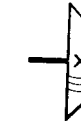
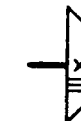
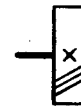
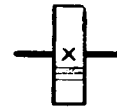
iii) double-helical  
( or herring bone )

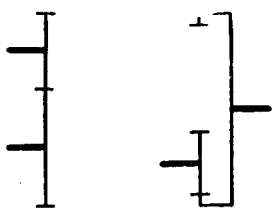
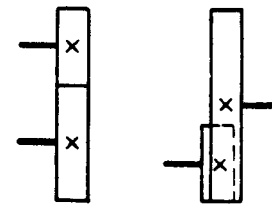
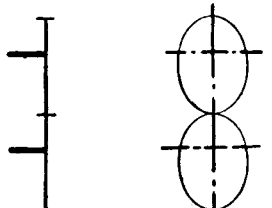
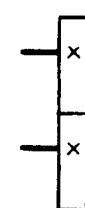
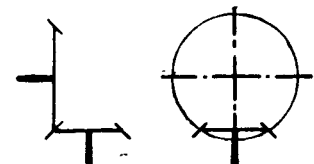
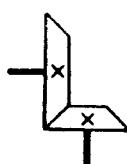
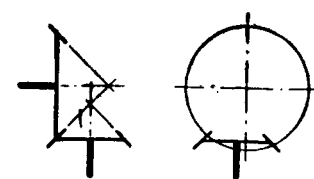
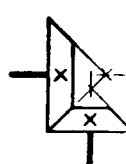
b) of bevel wheels

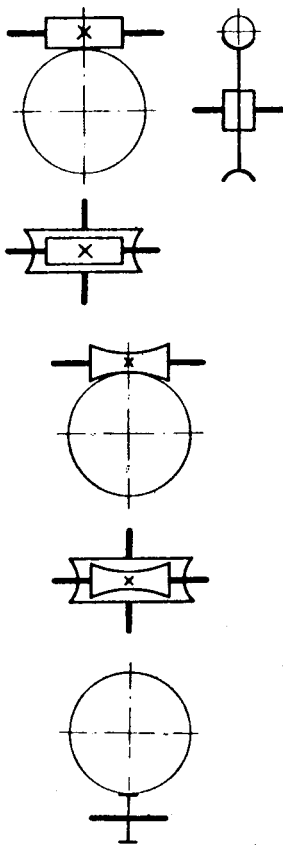
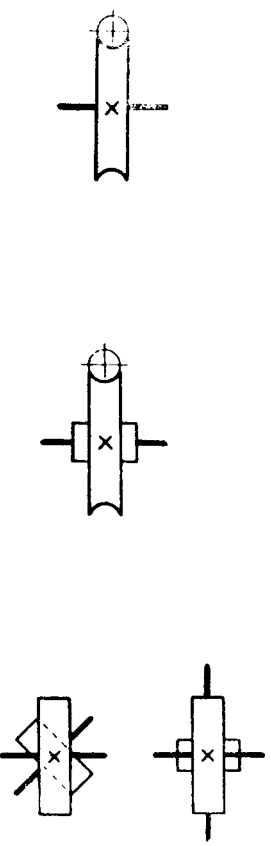
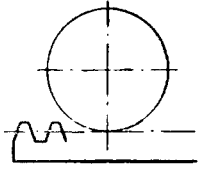
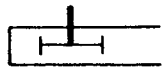
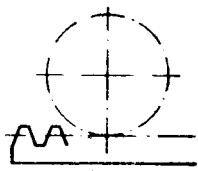
i) straight toothed

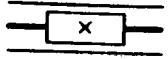
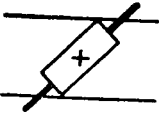
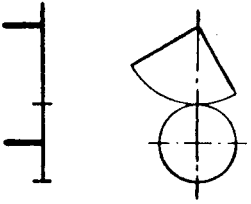
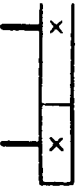
ii) spiral

iii) circular ( zerol )

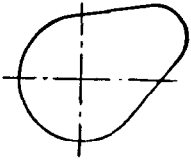
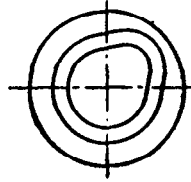

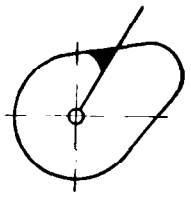
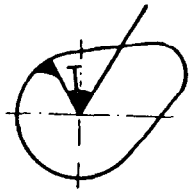


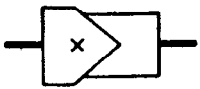

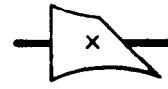
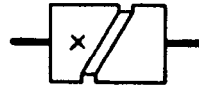
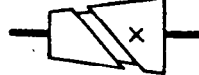

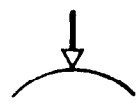
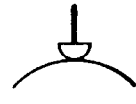

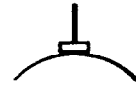




| No.   | Designation  | Definition | Basic symbol   | Permissible symbol  | Notes |
|-------|--|------------|--|---|-------|
| 5.2.3 | <i>Gear transmission (without specification of tooth form)</i> |            |  |   |       |
|       | a) cylindrical with circular gears                             |            |   |    |       |
|       | b) with non-circular gears                                     |            |   |    |       |
|       | c) bevel   |            |    |    |       |
|       | d) hypoid  |            |  |  |       |

|              |   |  |   |  |  |
|--------------|---|--|---|--|--|
|              | <p>e) worm-gear with cylindrical worm</p> <p>f) double enveloping wormgear pair ( globoidal )</p> <p>g) crossed helical gears</p> |  |  <p>Diagrams showing front and side views of a worm-gear with a cylindrical worm, and a double enveloping wormgear pair (globoidal) in front and side views.</p> |  <p>Diagrams showing front and side views of crossed helical gears.</p>              |  |
| <p>5.2.4</p> | <p><i>Rack-type transmission</i></p> <p>a) general designation</p>  |  |  <p>Diagram showing a rack-type transmission with a gear meshing with a rack.</p>  |  <p>Diagram showing a rack-type transmission with a gear meshing with a rack.</p> | <p>It is permissible to show the wheel with a dot-dash line</p>  <p>Diagram showing a rack-type transmission with a gear meshing with a rack, where the gear wheel is represented by a dot-dash line.</p> |

| No.   | Designation                                  | Definition | Basic symbol   | Permissible symbol   | Notes |
|-------|--|------------|--|--|-------|
|       | b) worm and worm<br>c) toothed rack and worm |            |  | <br> |       |
| 5.2.5 | Transmission with sector gear                |            |  |   |       |

## 6 Cam mechanisms

| No. | Designation                      | Definition | Basic symbol  | Permissible symbol | Notes  |
|-----|----------------------------------|------------|---|--------------------|--|
| 6.1 | Rotating cam plate               |            |    |                    | Grooved face cam<br>        |
| 6.2 | Rectilinearly moving cam plate   |            |    |                    |  |
| 6.3 | Fixed connection of cam with bar |            |  |                    | Permitting adjustment<br> |

| No. | Designation   | Definition                        | Basic symbol   | Permissible symbol  | Notes   |
|-----|---|-----------------------------------|--|---|---|
| 6.4 | <b>Spatial rotating cam</b><br><br>a) cylindrical<br><br>b) conical<br><br>b) globoidal                           |                                   | <br><br>  | <br><br> |   |
| 6.5 | <b>Cam follower</b><br><br>a) knife-edge<br><br>b) arcuate<br><br>c) roller<br><br>d) flat-faced ( or mush room ) | Translating link of cam mechanism | <br><br><br> |   | Designation of element of cam follower, forming a part of pair cam-cam follower<br><br><br><br><br> |